℥ij of water. With the ozone test it instantly struck a fine blue colour, which in a few minutes became of a deep black. From the volatility of bromine great care is required to preserve it for any length of time. The above proportion of bromine is far too strong for internal use. A formula proposed by Ozanam in 1860 makes a preparation that is permanent, and may be employed internally. It is as follows:—

Bromine, pure	10 centigram. 2 drops.
Bromide of potassium	10 do.
Distilled water	100 gram.
M.	

This solution gives a deep blue with the ozone test, which soon passes into black.

From the similarity between bromine and chlorine, I was led to test the latter with the ozone test. A drachm of chloride of lime was put into a pint bottle and a few drops of sulphuric acid added; in a few moments the bottle was filled with chlorine. A dried test paper was then introduced; it assumed in a few moments a bluff colour; when the paper was moistened it instantly changed into the blue colour, which soon became black. When the moist paper was introduced these changes took place in the shortest period.

The test papers acted on by the solutions of permanganate of potash, bromine, and chlorine, exhibited equal intensity of colour; they could not be distinguished.

These facts appear to indicate ozone or antozone as the active principle of the solution of bromine as well as of the permanganate of potash and of chlorine.

Art. VIII.—*Case of Amputation at the Hip-Joint; illustrated by an engraving.* By S. D. Gross, M.D., Professor of Surgery in the Jefferson Medical College, and one of the Surgeons of the Philadelphia Hospital.

Amputation at the hip-joint has been so often performed as to render it unnecessary to enter into any minute details respecting the present case, although one of great practical interest. It is proper to premise that the notes of this case were drawn up by Dr. W. W. Keen, Jr., my private clinical clerk, now assistant surgeon in the United States Army.

Margaret Thompson, aged 9 years, in November, 1861, was scalded over nearly the whole of the left foot, leg, and thigh, and also on the right knee and leg, followed by extensive exfoliation of the epidermis. The affected surface, instead of healing, remained inflamed and painful. When she entered the hospital, five months before the operation, she was extremely thin, feeble, pale, and anæmic. In January, 1862, when I took charge of her case, she was in the most deplorable condition, frightfully emaciated, and in so much suffering as to require the constant use of anodynes. Fortunately, however, her appetite was pretty good; she eat heartily, and drank daily six ounces of brandy. The left limb was so much retracted that the knee nearly touched the chin, and the joint itself was almost completely anchylosed. In addition to this it was greatly withered, the thigh being hardly as thick as an ordinary wrist, and covered from the ankle nearly to the hip with one continuous scab, of a brownish colour, from two to four lines in depth, and exhaling the most horrible odour.

Convinced that she could not survive many weeks longer in this condition, I requested a conference with my colleagues in regard to the propriety of amputation at the hip-joint. After taking into view all the circumstances of the case, only one of them consented to share with me the responsibility of an operation. I had myself, I confess, very little hope of success; still, the knife afforded the only chance, and I therefore determined to employ it. The stench exhaled from the limb was of itself sufficient to destroy her; for no means could be found to correct it in her painful and exhausted condition.

The operation was performed in the presence of the clinical class of the hospital, on the 29th of January, fourteen months after the receipt of her injury. The little sufferer, placed under the influence of brandy and chloroform, was apparently more dead than alive, so frightfully thin and exsanguineous was she. Important aid was rendered me during the operation by my colleagues Dr. Agnew, Levis, and Kenderdine, in compressing the aorta and femoral artery, and in securing the divided vessels. Two flaps were formed, an anterior and a posterior, with a narrow catlin, the whole proceeding occupying less than twenty seconds. Altogether not two ounces of blood were lost. Brandy was freely administered as soon as consciousness was sufficiently restored; and in about three hours the flaps were carefully approximated by wire sutures and adhesive strips. Morphia was given to allay pain and promote sleep. Milk punch and animal broths constituted the chief diet, and were well borne by the stomach.

Margaret slept comfortably the night after the operation, and rested well all next day, as well as the following night, taking an abundance of nourishment.

February 1. This morning Dr. Keen made the following entry: "Margaret is doing admirably; she is better than at any time since the operation —in fact, she is bright and cheerful. The wound is looking well; there is slight suppuration, but no evidence of erysipelas, which has been prevalent for some time in the house. The bowels are quiet; the sleep and appetite are good, and brandy is administered freely."

5*th*. The case is progressing most satisfactorily. The wound, dressed two days ago, looks healthy, and discharges very slightly.

8*th*. The bowels were moved spontaneously for the first time two days ago. As there have been neuralgic pains in the stump for the last few nights, two grains of quinia were ordered to be given thrice daily. Under this treatment the suffering rapidly subsided; and the next night she enjoyed five hours of uninterrupted sleep. She eat eighteen oysters yesterday, and takes daily nine ounces of brandy in the form of milk punch.

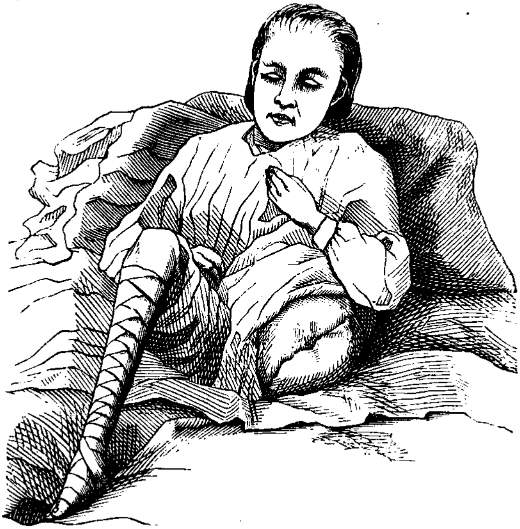
11*th*. The wound has all healed, except a small space at the centre, where there is a little suppuration and bagging of the lower flap. The child is still greatly emaciated, but she is cheerful, and has an excellent appetite. She has been for some days taking quinia and tincture of iron.

She consumes nine ounces of brandy every twenty-four hours, and is manifestly improving in strength and colour.

15*th*. The wound is nearly healed; all the sutures have been removed, and several of the ligatures have come away.

From this time no regular record was kept of the case. The child continued steadily to improve in health and vigour; the discharge from the wound gradually ceased, and the stump ultimately assumed a solid, healthy aspect. The ligature of the femoral artery did not drop off until nearly three months after the operation.

Nearly two years have now elapsed since this case fell into my hands. When Margaret was last seen, about four months ago, she was fat and stout, with a good complexion, but was evidently labouring under serious valvular disease of the heart. The stump, represented in the annexed engraving by Mr. Seabald, was well formed, and in excellent condition. The right limb was much improved in muscular development and strength, but still somewhat stiff at the knee. In a word, the whole appearance of the girl was in the most striking and gratifying contrast with that which she presented prior to the amputation.



The knee-joint of the amputated limb had been partially destroyed by inflammation. The cartilages were highly vascular, as were also those of the great trochanter and the head of the femur, the latter of which was covered by plastic deposits, partly organized, and, at one point, slightly ossified. The compact tissue of the femur, tibia, and fibula was abnormally thin and soft, while the areolar substance was everywhere remarkably red and injected. The periosteum exhibited no appreciable alterations.

The circulation of the limb in this case was easily and effectually controlled by digital compression of the aorta, owing to the very flaccid and empty condition of the abdomen. As an additional security, compression was also applied to the femoral artery at Poupart's ligament.

For much of the success of the after-treatment of this remarkable case, I am indebted to my former clinical assistants at the hospital, Drs. Maury, Lineweaver, Jamar, and Allen, who exercised the most tender vigilance and care over the little patient during the critical period of her confinement.

ART. IX.—*On Gunshot Wounds of Arteries. Traumatic Hemorrhage and Traumatic Aneurism.* By JOHN A. LIDELL, M.D., Surgeon U.S. Vols.

CASE I. *Gunshot wound dividing the axillary artery and injuring the brachial plexus of nerves of the left side; circumscribed traumatic aneurism occurring on the twenty-first day; ligature of the subclavian external to the scalenus; death forty-six days afterwards from exhaustion.*—Capt. John F. Jordan, Co. "B" 13th Va. Cavalry (Rebel), aged 31 years, and of sound constitution, was admitted to Stanton Hospital June 23, 1863. He had been wounded two days before (June 21) in an action near Middleburgh, Va., by a shot from a carbine. The bullet, which by the way was conical in shape, penetrated the pectoralis major muscle of the left side, at a point on a level with the axillary artery, and about one and a half inches from the margin of the armpit, passed directly backwards beneath the shoulder, wounding the axillary artery together with the brachial plexus of nerves, and escaped behind. Patient said he lost a great deal of blood immediately after the wound was inflicted; so much, indeed, that he fainted; the hemorrhage then ceased and had not since returned.

On admission to hospital, his left arm exhibited some swelling, œdematous in character, and its inner side was ecchymosed nearly down to the elbow-joint. It was also paralyzed, the loss of both sensibility and mobility being complete. There was no radial pulse in that arm, and pulsation could not be detected in the brachial or any other artery thereof. From this we inferred that the axillary artery had been severed by the bullet. The temperature of the limb was not below the normal standard; on the contrary, we thought it to be somewhat warmer than the limb of the opposite side.

There was nothing remarkable in the appearance of the wound. The patient's general condition was good. He did not look as if he had suffered from hemorrhage. The bowels were constipated: Ordered a saline purge together with a spare diet; and with a view to lessen the tendency to secondary hemorrhage, he was directed to remain quiet in bed, to exert himself as little as possible, and to have ice applied constantly over the injured artery. He was also directed to take morphia at night if necessary to procure rest.

Under this treatment the patient progressed without an unfavourable symptom; the wound cleaned itself and closed up in a satisfactory manner, and we congratulated the patient on the prospect of his getting well without suffering the terrible secondary hemorrhage which frequently attends